A tubed anemone provides the photographer with a soft contrast to the hard coral overhang above

Marine Life

Schools of barracuda are common and can be seen at many sites

The GBR (and additionally the tropical coral reefs to the near north) is one of the few places you can see representatives from almost every group of animal on the planet – and many you won't see anywhere else. The greatest challenge is to identify and name these millions of animals so other divers know what you are talking about.

The system biologists use to differentiate one critter from another is known as binomial nomenclature – the method of using two words (usually shown in italics) to identify an organism. The second word is the species, which is the finest detail name for an animal, and refers to organisms that can only breed with other members of the same species. The first italic word is the genus, into which members of similar species are grouped. Where the species or genus is unknown, the naming goes to the next known (and less specific) level: Family (F), Order (O), Class (C) and Phylum (P).

For real animal knowledge it is best to choose one animal and observe it closely. It is too easy to try to look at everything at once. A slate is a very good way of remembering shapes or colour patterns.

The vertebrates (animals with backbones) in the photographs below show some of the most common members of the major families. Use these shapes as the basis of your slate diagrams.

Invertebrates are animals that have no backbone at any time of their life. Invertebrates are by far the most diverse animals seen anywhere, especially underwater. The photographs below show the major groups and their evolutionary sequence of development and complexity.

whale shark
Rhincodon typus

leopard shark
Stegostoma fasciatum

whitetip reef shark
Triaenodon obesus

grey reef shark
Carcharhinus amblyrhyncos

scalloped hammerhead shark
Sphyrna lewini

tassled wobbegong
Eucrossorhinus dasypogon

cowtail ray
Pastinachus sephen

manta ray
Manta birostris

giant moray eel
Gymnothorax javanicus

variegated lizardfish
Synodus variegatus

reef flounder
F. Cynoglossidae

painted flutemouth
Aulostomus chinensis

spotfin lionfish
Pterois antennata

potato cod
Epinephelus tukula

coral trout
Plectropomus leopardus

redthroat sweetlip
Lethrinus miniatus

yellowfin goatfish
Mulloidichthys vanicolensis

longfin bannerfish
Heniochus acuminatus

beaked coralfish
Chelmon rostratus

blue angelfish
Pomacanthus semicirculatus

flame angelfish
Centropyge loriculus

pink anemonefish
Amphiprion perideraion

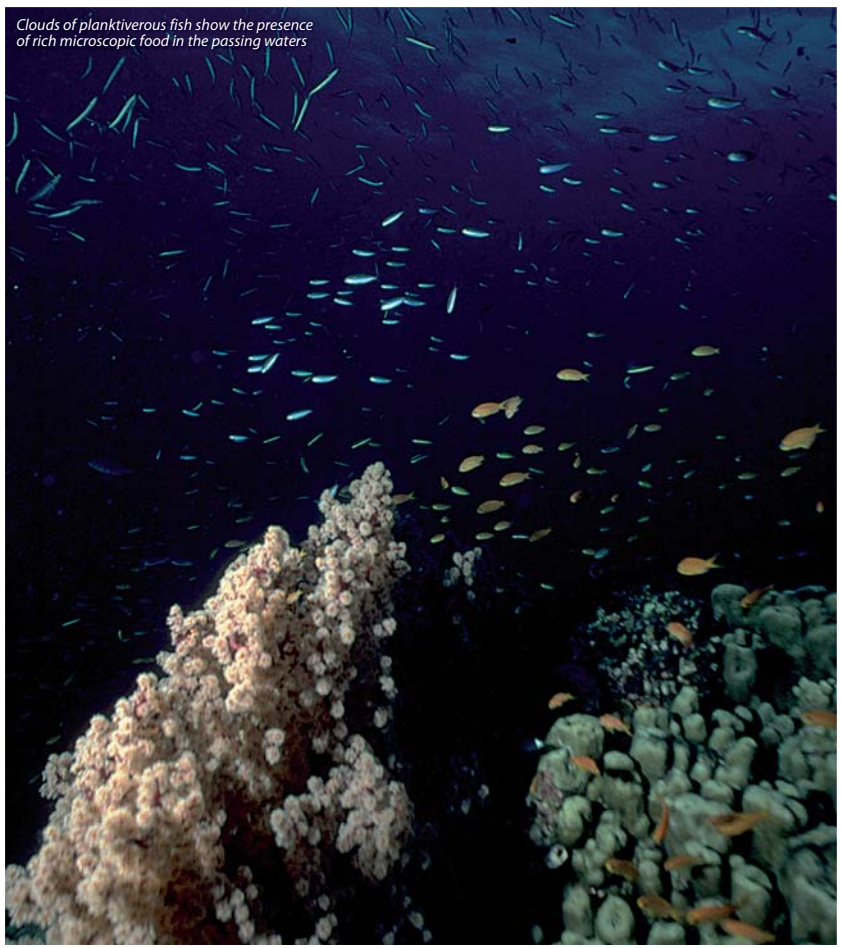
green moon wrasse
Thalassoma lutescens

Maori wrasse
Cheilinus undulatus

minifin parrotfish
Scarus altipinnis

clown triggerfish
Balistoides conspicillum

black-spotted toadfish
Arothon nigropunctatus



Clouds of planktiverous fish show the presence of rich microscopic food in the passing waters

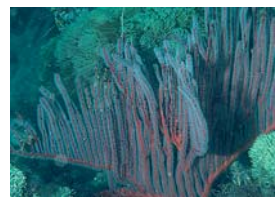
sponge
Amphimedron sp.

flatworm
Pseudoceros bimarginatus

feather duster worm
Protula sp.

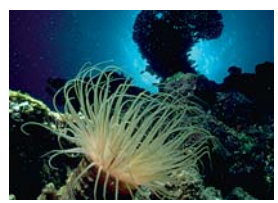
Christmas tree worm
Spirobranchus giganteus

turret corals
Tubastraea sp.



comb gorgonian
Ctenocella pectinata

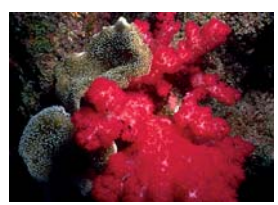
zoanthid
Palythoa sp.



tubed anemone
F. Ceriantidae

black coral
Atipathes sp.

staghorn coral
Acropora sp.



soft coral
Dendronephthya sp.

lace coral
Stylaster sp.

painted crayfish
Panulirus versicolor

imperial shrimp
Periclemes imperator

egg cowry
Ovula ovum

octopus
Octopus sp.

giant clam
Tridacna gigas

chromodoris nudibranch
Chromodoris coi

rigid-bodied nudibranch
Notodoris gardineri

bryozoans
Phyl. Bryozoa

feather star
Cl. Crinoidea

blue sea star
Linckia laevigata

sea cucumber
Thelanota anax

sea urchin
Echinometra mathaei

Divers can explore every possible reef habitat on the GBR

Box sea jellies are only found in costal waters during northerly calms

HAZARDOUS MARINE LIFE

Marine animals almost never attack divers, but many have defensive and offensive weaponry that can be triggered if they feel threatened or annoyed. If you're not sure what something is, don't touch it! Being able to recognise potentially hazardous creatures is a good way to avoid accident or injury. The following photographs illustrate some of the GBR's most venomous and dangerous marine life, followed by short descriptions of what to expect and some recommendations for first aid in the unfortunate event you are stung, bitten or stabbed. Trained locals are aware of the latest discoveries in terms of the animals and what treatments are best.

Bristle worms

Bristle worms are free-living polychaete (many-bristled) worms. If you touch one, its bristles will break off in your skin, causing an intense burning sensation. Using gently applied glue or wax will help remove the fine, hair-like bristles.

Sea jellies & other stingers

Sea jellies, box jellies and Portuguese man-o-war are found in GBR waters and have dangerous tentacles loaded with nematocysts (stinging cells), used to deter predators and catch prey. Upon contact, the stinging cells will 'fire' and cut into the skin, injecting venom.

Box jellies are found only along the coast. They, and the small Irukandji (a type of box jelly), can deliver fatal stings. However, deaths are uncommon and even severe stings can usually be treated with modern first aid. Flood sea jelly stings with vinegar or the recommended fluid for that species, then apply a cold compress. For others, remove any remaining tentacles with forceps, flood the wound with iced water and maintain a cold compress.

Fire coral

Fire coral appears as two basic hydrozoan forms. Fireweed can be either white or brown and is soft, fragile and feathery. The hard form – stinging coral – is either encrusting or branching and appears as a yellow or brown colony. Look at them carefully and you will see their surfaces are covered in tiny hairs – each loaded with stinging cells. The hairs grow out of minute pores, hence its scientific name, Millepora. Contact results in a burning itch which may develop into secondary infections if scratched. To treat, use vinegar then hydrocortisone cream.

Bristle worms can cause severe itching if handled


Corallimorpharian

Anemones & Corallimorpharians

Anemones and corallimorpharians use the same stinging cells as the fire corals and sea jellies. Some anemones are totally harmless, while others can cause a severe pain or allergic reaction. Corallimorpharian stings tend to be itchier and take much longer to heal. Treat with vinegar, ice packs and local anesthetics and monitor the patient.

Cone shells

Cone shells are found in the shallows of most reeftops and under boulders. These attractive shells are armed with a proboscis, out of which shoots a small poisonous harpoon used to inject a highly toxic venom. In the event of a sting, the stung area will go numb, and can be followed by muscular or respiratory paralysis and even, in extreme cases, heart failure. Treat as for snake bite with a pressure bandage and seek medical attention immediately.

Blue-ringed octopus

Although only small – 5cm to 20cm – this octopus, whose blue rings flash when it is annoyed, delivers a sometimes fatal bite which can cause death if EAR is not maintained. People have put shells in their wetsuit only to be surprised when a blue-ringed octopus emerges. Avoid empty shells, cans, bottles and the octopus. Apply pressure bandages and seek medical attention.

Sea urchins & Crown-of-thorns sea stars

With spines strong enough to penetrate neoprene and the skin, spiny sea urchins and crown-of-thorns sea stars are obvious creatures to avoid, especially urchin species that have a toxin bulb at the end of the spines. Some urchins have toxic pedicellariae (pincers) between the spines, which cause severe pain upon contact and have killed humans. Like most hazardous critters, you can completely avoid injury by not touching them. To treat, remove the spine debris and soak affected area in non-scalding hot water.

Sea snakes

The venom of these air-breathing reptiles is said to be up to 20 times stronger than any land snake. Sea snakes only release venom when feeding or under extreme distress – so most defensive bites do not contain venom. If bitten and injected with venom, immobilise the limb, use a pressure bandage and get help immediately. Do not wash the wound.

Stingrays

Stingrays are generally harmless but be careful when walking in the shallows or kneeling on the bottom. If you tread on a ray, it will flick its tail over its head and drive the barb in its tail downward into your leg or foot. The barb can penetrate bone and leaves venom, which is extremely painful. Remove any debris and put the wounded area into non-scalding hot water. This denatures the venom in about 20 minutes. Always shuffle your feet when walking in the shallows and check the sea floor before kneeling.

Sharks

Sharks have never killed nor injured a scuba diver in GBR waters. There have been a few bumps and rubs – causing skin abrasions or lacerations – but most sharks are totally harmless. The few that have the size to be potentially harmful are usually timid. Incidents usually only occur to people intentionally feeding sharks or carrying fish, which sharks can try to take for food. Townsville has one of the highest death rates to sharks in the world – but all occurred during WWII when soldiers swam in the river outlet that carried offal from the local meat works!

Moray eels

Morays open and close their mouths to breathe, which makes them look as though they're about to take a big bite. But, shy by nature, morays will leave you alone if you leave them alone. They will bite in unusual circumstances and when they do it is difficult to get them to let go, as their teeth slant backwards. If bitten treat the wound with antiseptics then seek medical attention.

Barracuda

All teeth and almost no bite, barracuda often get a bad rap. Unless provoked, they rarely attack divers. They may be attracted to a shiny object resembling a lure. They have sharp, backward-slanting teeth and an underslung jaw, which allows them to hang on. If you are bitten, don't pull back too quickly thus avoiding nasty tears to the skin. Treat as you would a moray bite.

Venomous fish

Scorpionfish, stonefish and lionfish are all masters-of-disguise with bulbs of venom at the base of their dorsal spines (or all spines in the case of the lionfish), so if you tread on one or annoy it enough, you are likely to be punctured and then injected with venom. Use non-scalding hot water to denature the venom and seek medical advice.